

REMARKS/ARGUMENTS

This amendment is respectfully submitted in response to the non-final Office Action dated March 15, 2004.

I. Introduction

Claims 1-20 are pending. Claims 1, 11, 14 and 20 have been amended. In the Office Action the Examiner indicated that claims 11 and 12 were directed to allowable subject matter but objected to these claims for depending from a rejected base claim. In addition, the Examiner rejected claims 1-3, 13-17 and 20 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,487,413 to Suojasto (hereinafter "the Suojasto patent") Claims 4-8 stand rejected under 35 U.S.C. §103 as being unpatentable over the Suojasto patent in view of U.S. Patent No. 6,192,243 to Yang et al. (hereinafter "the Yang et al. Patent"). In addition, the Examiner rejected claims 9-11 and 18 under 35 U.S.C. 103(a) as being unpatentable over the Suojasto patent in view of U.S. Patent No. 6,535,745 to Seraj (hereinafter the "the Seraj patent").

In each of the rejections, the Suojasto patent is the principle reference. As will be discussed below, the Suojasto patent does not disclose many of the features recited in the claims and the additional references fail to make up for these deficiencies.

In view of the above amendments and following remarks, it is respectfully submitted that all of the pending claims are patentable over the applied references.

II. Summary of the Invention and Principal Reference

1. Summary and Discussion of the Invention

The present invention is directed to methods and apparatus for collecting and generating statistics relating to the number, distribution and/or flow of people in a geographic region. In various embodiments, the present invention supports services such as measuring the size of a crowd. Another application of the present invention is to measure highway traffic flows and/or detect traffic jams.

In various exemplary embodiments of the present invention the number and, optionally, information on the type of active wireless devices in an area is collected, e.g., in an automated manner. The active device count may be collected from each of a variety of wireless communication centers. As part of the process, active device count information is mapped, e.g., correlated, to one or more specific targeted geographic areas of interest. In some embodiments the statistical data for a target area is further processed to take into consideration the portion of people that are likely to be utilizing multiple wireless devices.

In accordance with the invention the number of people present in a region and/or estimates of the flow of people can be generated from the number, e.g., count, of active wireless devices in one or more geographic regions of interest. In some embodiments by analyzing data on the number of active devices over a period of time, information on the movement, e.g., flow of people in a geographic area is generated. Accordingly, the methods of the present invention are well suited for providing traffic flow information, e.g., information on how the number of people or devices in a geographic region varies over time.

The applied references do not teach, disclose or suggest estimating the number of people in a geographic region from the number of active wireless devices in a region or various other features of the invention such as determining the flow of people through a region based on active device counts.

2. The Suojasto Patent

In contrast to the present invention which is directed to, among other things, estimating the number of people in a region, the Suojasto patent is directed to estimating the need for capacity for different parts of a communication system based on stored data generated from location update messages which indicates the number of mobile stations located in an area. (See, Abstract, and Col. 2, lines 39-65).

The Suojasto patent is devoid of any reference to the word "people". There is no mention of generating an estimate of the number of people in an area or of determining anything about the flow of people from device location information. Accordingly, it in no way anticipates or renders obvious the pending claims.

III. The Pending Claims Are Patentable

As discussed above, the principle reference used to reject each of the pending claims is the Suojasto patent which does not mention the word "people" let alone estimating the number of people in a geographic region based on the number of active wireless devices in a cell. In addition, the Suojasto patent fails to discuss or describe generating information about the flow of people based on changes in the number of active wireless devices in a geographic region. The secondary references applied by the Examiner do not make up for these significant deficiencies.

Furthermore, the Examiner does not contend that the secondary references disclose the elements Applicant asserts are missing from the Suojasto patent. Accordingly, in the discussion which follows, Applicant will restrict the discussion to the Suojasto patent with the understanding that the secondary references do not show the elements identified and highlighted by Applicant.

Applicant will now address the rejection of the various claims in detail.

1. **Claim 1-10 and 13 Are Patentable**

The Examiner's rejection of the claims appears to be based on the assumption that the number of mobile stations in a cell or area is the same as the number of people in a cell or area. There is no support in the applied references for this position. In fact, if this were the case, there would be no need for the estimating step recited in the pending claims.

Claim 1 and claims 2-10 and 13 which depend there from are patentable because claim 1, as amended, recites:

A method of processing active wireless device statistics, the method comprising:

receiving statistics indicating the number of active wireless devices in at least one communications cell;
estimating the number of people in a geographic region of interest from the number of active wireless devices indicated by the received statistics.

While the Examiner rejects claim 1 under 35 U.S.C. §102, the Examiner has failed to identify anywhere in the Suojasto patent where a number of people is described let alone estimating a number of people from statistics on the number of active wireless devices. Accordingly, the anticipation rejection should be withdrawn.

In rejecting claim 1, the Examiner states:

Regarding *claim 1*, Suojasto teaches of a method of compiling statistics (location update request/messages) on mobile stations, which reads on claimed "processing active wireless device statistics", the method comprising"

- . receiving said statistics on the number of active mobile stations, as taught in column 2, lines 59-65, in at least one area, which reads on claimed "communication cell". See column 2, lines 13-20;
- . estimating the number said mobile stations, which reads on claimed "people", both passive and active mobile stations (see column 2 lines 28-39), in a geographical area, which reads on claimed "region", if interest from the received statistics on the number of said active mobile stations. (Office Action pp. 2-3, bold and italics in original)

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In reviewing the Examiner's rejection of claim 1, Applicant thinks that the Examiner took an overly broad interpretation of the claim language. "People" are not the same as mobile stations. Accordingly, the Examiner's assertion that "estimating the number said mobile stations" reads on "people" is not accurate. The point of having to estimate the number of people is that normally the number of people in a region is NOT the same as the number of devices in the region. For example, as discussed in the application (see page 20) it can be estimated that only a portion of the population in an area of interest will have active devices and that a count of active devices can, in one example, be multiplied by an expected ratio (e.g., of the normally occurring number of people in a region to the number with an active device) to determine an estimate of the number of people in a region.

The applied references **do not perform, teach or suggest the step of "estimating the number of people in a geographic region of interest from the received statistics on the number of active wireless devices" recited in claim 1.** Accordingly, the rejection of claim 1 and the claims 2-10 and 13 which depend there from should be withdrawn.

Applicant will address the rejection of claim 1 further since it clearly fails to anticipate the claim even if the "people" are the same as both passive and active mobile stations as the Examiner asserts in the Office Action. (Applicant will do this while re-iterating that people are not mobile stations)

The Examiner cites column 2, lines 59-65 as apparently corresponding to claimed step of "receiving statistics on the number of active wireless". Applicant notes that this portion of the reference clearly refers to "information on the number of both passive ... and active ... mobile stations".

Then the Examiner proceeds to cite column 2, lines 28-39 as allegedly disclosing the step, recited in original claim 1, of "estimating the number of people in a geographic region of interest from the received statistics on the number of active wireless devices".

Col. 2, lines 28-39 states:

When statistics are kept on location update messages during a relatively long period, **the number of phones in the area can be found out more accurately than before, because the number of passive mobile stations can be detected as well.** The most significant advantage of the method of the invention is thus that it gives a more accurate picture of the number of phones located in the predetermined geographical area of interest, whereby potential bottlenecks concerning the capacity of the system can be found more easily than previously, and that the method of the invention can be applied by very small measures to existing systems by means of a software.

Applicant has clarified claim 1 to indicate that the "estimate of the number of people in a geographic region" is based on the number of active wireless devices and not merely statistics.

Applicant notes that the number of mobile stations referred to in col. 2, lines 28-29 **is the same number** referred to in col. 2, lines 59-65, i.e., the number of active and passive phones. The cited portions do not discuss estimating some number based on the number of active mobile stations. Rather, Col. 2 makes it clear that the number of mobile stations (active and passive) is determined from statistics on location update request messages. Accordingly, the rejection of claim 1 and the claims which depend there from should be withdrawn for this additional reason as well.

The additional references cited in the Office action do not make up for the deficiencies of the Suojasto patent. Accordingly, claims 1-10 and 13 are patentable over the applied references.

2. Claims 11-12 Are Patentable

The Examiner indicated that claim 11 was directed to allowable subject matter. Claim 11 has been rewritten in independent form. Accordingly, claim 11 and claim 12 which depends from claim 11 are now in condition for allowance.

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3. Claims 14-16 Are Patentable

In rejecting claim 14, the Examiner relies on column 4, lines 30-35 of the Suojasto patent, which refer to traffic capacity to reject the claim. This portion of the Suojasto patent states:

... The most significant advantage of the method of the invention is thus that it gives a more accurate picture of the number of phones located in the predetermined geographical area of interest, whereby potential bottlenecks concerning the capacity of the system can be found more easily than previously ...

Claim 14, as amended, is patentable because it recites:

A method of generating a traffic flow report indicating the flow of people in a geographic area, the method comprising the steps of:
collecting active wireless device statistics from a communications cell over a period of time; and
detecting changes in the collected active wireless device statistics; and
generating a report including information on the flow of people through said geographic area based on detected changes in the collected active wireless device statistics.

As discussed above, the Suojasto patent does not mention people let alone a **traffic flow report indicating the flow of people in a geographic area** as recited in claim 14. The capacity and potential bottlenecks discussed in the cited portion of the application relate to system (communications) capacity and not the flow of people. Accordingly, as amended, claim 14 is clearly patentable over the Suojasto patent. The other references cited by the Examiner do not talk about traffic flow reports indicating the flow of people. Accordingly, the references applied by the Examiner, when taken alone or in combination in no way anticipate or render obvious claim 14 or claims 15-16 which depend from claim 14.

4. Claims 17-19 Are Patentable

Independent claim 17 is patentable for the same general reasons that claim 1 is patentable. In particular, claim 17 is patentable because none of the applied references, alone or in combination, teach, disclose or suggest:

An apparatus for estimating the number of people in a geographic region, the apparatus comprising:
an interface for receiving an active wireless device count from at least one communications cell;
means for estimating based on the received active wireless device count the number of people in a geographic region including at least a portion of said communication cell.

Claims 18-19 depend from claim 17 and are patentable for the same reasons claim 17 is patentable.

5. Claim 20 is Patentable

Claim 20 is patentable for the same general reason that claim 1 is patentable. In particular Claim 20 is patentable because it recites:

A wireless communications system, the system comprising:
a plurality of wireless communications centers, each wireless communications center collecting statistics on the number of active wireless devices being serviced at a point in time;
a processing center coupled to the plurality of wireless communications centers, the processing center receiving from said wireless communication centers the statistics on the number of active wireless devices being serviced, the processing center including:
means for estimating the number of people in a geographic region of interest from the number of active wireless devices being serviced by said wireless communications centers.

IV. Request for Clarification

If the Examiner persists in the rejection of claim 1 or any of the other claims based on the Suojasto patent, Applicant requests clarification of the Examiner's position so that Applicant can fully respond to any further rejection. In particular it is requested that the Examiner answer/respond to the following questions and requests for information:

1) Please identify what precisely the Examiner contends corresponds to "the number of active wireless devices" recited, e.g., in claim 1, and "the number of people in a geographic region".

2) Please identify where estimating the value identified in the reference as corresponding to "the number of people in a geographic region" is described as being estimated from the value identified as "the number of active wireless devices" recited in claim 1.

3) Does the Examiner contend that the Suojasto patent teaches that the number of "mobile stations" in an area is the same as the number of "people" in an area? If so, where does the Suojasto patent indicate that they are the same?

4) If the Examiner feels that Suojato patent describes some relationship between the number of mobile stations in an area and the number of people in an area does the Examiner contend that the number of people equals the number of active mobile stations, the number of passive mobile stations, or the total of active and passive stations and where does the Suojasto patent provide support for the Examiner's position.

If the Examiner issues any new rejection, and the Examiner contends that something that does not discuss "people" is the same as an estimate of "the number of people in a geographic region" it is requested that the Examiner explain why what is indicated to correspond to an estimate of the number of people is actually an estimate of the number of people and not something else, e.g., an estimate of devices present in a location regardless of whether or not a person is present in the region. If the Examiner can not cite a portion of a reference to support the Examiner's position it is requested that the Examiner submit an affidavit setting forth the personal knowledge upon which the rejection is based.

V. Conclusion

In view of the foregoing amendments and remarks, Applicant respectfully submits that the pending claims are in condition for allowance. Accordingly, Applicant requests that the Examiner pass this application to issue.

If there are any outstanding issues which need to be resolved to place the application in condition for allowance the Examiner is invited to contact Applicant's undersigned representative by phone to discuss and hopefully resolve said issues. To the extent necessary, a petition for extension of time under 37 C.F.R. 1.136 is hereby made, the fee for which should be charged to Patent Office deposit account number 07-2347

Respectfully submitted,

June 16, 2004


Joel Wall
Reg. No. 25,648

Verizon Corporate Services Group Inc.
600 Hidden Ridge Drive
Mail Code: HQE03H14
Irving, Texas 75038
(972) 718-4800